WHAT IS CLAIMED IS:

1. A method for manufacturing a thin-film magnetic recording medium, comprising the steps of:

forming a laminate for magnetic data recording;

forming a protective layer on said laminate;

plasma-etching a first outer surface of said protective layer,

forming a lubricant layer on said first surface, and

conducting the steps of forming a laminate, forming a protective layer, plasma-etching, and forming a lubricant layer continuously in a vacuum.

2. A method, according to claim 1, wherein:

said step of forming said laminate is at least one method selected from the group consisting of sputtering, ion plating, plasma C.D., and vacuum deposition.

3. A method, according to claim 2, wherein:

said step of forming said protective layer is a method selected from the group consisting of sputtering, ion plating, plasma C.D., and vacuum deposition.

4. A method, according to claim 3, wherein:

said step of plasma-etching is conducted in a process gas mixture containing at least an inert gas and a first gas selected from the group consisting of a nitrogen gas, an oxygen gas, a chlorine gas and a fluorine gas.

5. A method, according to claim 3, wherein:

said step of plasma-etching is conducted in a process gas mixture of Ar, O_2 and N_2 where the mixing ratio thereof is substantially 6: 1: 3.

6. A method, according to claim 1, wherein:

said step of plasma-etching is conducted in a process gas mixture containing at least an inert gas and a second gas selected from the group

consisting of a nitrogen gas, an oxygen gas, a chlorine gas and a fluorine gas.

7. A method, according to claim 1, wherein:

said step of forming said laminate is a dry process; and

said step of forming said protective layer is a dry process.

8. A method, according to claim 4, wherein:

said vacuum is not more than about 4×10^{-6} Torr.

9. A method, according to claim 1, wherein:

said nonmagnetic substrate has a Ni-P plated outer layer on an Al alloy base layer;

said step of forming said laminate includes a first step of forming a Cr-alloy undercoat layer on said Ni-P plated outer layer;

said step of forming said laminate includes a second step of forming a Co-Cr alloy intermediate layer on said Cr-alloy undercoat layer; and

said step of forming said laminate includes a third step of forming a Co-Cr-Pt magnetic recording layer on said Co-Cr alloy intermediate layer.

10. A method for manufacturing a thin-film magnetic recording medium, comprising the steps of:

forming a laminate for magnetic data recording on a nonmagnetic substrate through a dry process;

said nonmagnetic substrate having a Ni-P plated outer layer on an Al alloy base layer;

said step of forming said laminate includes a first step of forming a Cr-alloy undercoat layer on said Ni-P plated outer layer;

said step of forming said laminate includes a second step of forming a Co-Cr alloy intermediate layer on said Cr-alloy undercoat layer;

said step of forming said laminate includes a third step of forming a Co-

Cr-Pt magnetic recording layer on said Co-Cr alloy intermediate layer;

forming a protective layer on said Co-Cr-Pt magnetic recording layer in a dry process;

said protective layer including at least a first component of C;

plasma-etching a first outer surface of said protective layer,

forming a lubricant layer on said first surface, and

conducting said steps of forming a laminate, forming a protective layer, plasma-etching, and forming a lubricant layer continuously in a vacuum.

11. A method, according to claim 10, wherein:

said protective layer further includes at least a second component of N.

12. A method, according to claim 10, wherein:

said step of plasma-etching being a dry plasma-etching in a gas mixture containing at least a first inert gas and a second gas selected from the group consisting of a nitrogen gas, an oxygen gas, a chlorine gas and a fluorine gas.

13. A method for manufacturing a thin-film magnetic recording medium, comprising the steps of :

forming a laminate for magnetic data recording on a nonmagnetic substrate;

said step of forming being a dry processes in a vacuum atmosphere;

forming a protective layer on said laminate;

said step of forming a protective layer being a dry process in a vacuum atmosphere;

plasma-etching a first surface of said protective layer;

said step of plasma-etching conducted in a vacuum;

conducting the steps of forming a laminate, forming a protective layer, and plasma-etching continuously; and

forming a lubricant layer on said first surface of said protective layer, whereby surface defects are minimized and surface quality is greatly improved.

14. A method, according to claim 13, wherein:

said step of forming said laminate for magnetic data recording is at least one method selected from the group consisting of sputtering, ion plating, plasma C.D., and vacuum deposition.

15. A method, according to claim 14, wherein:

said step of forming said protective layer is a method selected from the group consisting of sputtering, ion plating, plasma C.D., and vacuum deposition.

16. A method, according to claim 13, wherein:

said step of plasma-etching is conducted in a process gas mixture containing an inert gas and a first gas selected from the group consisting of a nitrogen gas, an oxygen gas, a chlorine gas and a fluorine gas.

17. A method, according to claim 14, wherein:

said step of plasma-etching is conducted in a process gas mixture containing an inert gas and a second gas selected from the group consisting of a nitrogen gas, an oxygen gas, a chlorine gas and a fluorine gas.

18. A method according to claim 15, wherein:

said step of plasma-etching is conducted in a process gas mixture containing the process gas mixture of Ar, O_2 and N_2 where the mixing ratio thereof is substantially 6: 1: 3.

19. A magnetic recording medium produced by the method of claim 1.

20. A magnetic recording medium produced by the method of claim 13.